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AUTHOR Kossack, Sharon: And Others
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ABSTRACT

Content area teachers should be aware of the five levels of vocabulary with which their students must cope. The five levels include standard words at the least complex level, transitional terms that have different meanings in the content area than in standard usage, technical terms specific to the subject area, changeable terms (similar to transitional terms) whose meanings change even within the content area, and phrases appearing in adjective-noun structures yet conveying meaning only as a unit. These five types of vocabulary can be taught at three instructional levels: the specific level of rote memory, the functional level that involves paraphrasing, and the conceptual level that introduces categories and analogies. Research has shown that teachers using only exercises at the specific level will inhibit vocabulary development beyond simple rote memory; so teachers need to vary instruction with specific, functional, and conceptual learning tasks in order to stimulate meaningful student vocabulary development. Teachers can also apply the levels of vocabulary and the criteria for vocabulary instruction as taxonomies for studying the readability of materials and for preparing, evaluating, and discussing instructional materials and objectives. (FL)

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HOW TO **REDUCE** VOCABULARY INTERFERENCE IN THE CONTENT AREAS

BY Sharon Kossack,
Richard Campbell,
Edward Reichback;
Florida International University

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Richard Campbell

Edward Reichback

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HOW TO REDUCE VOCABULARY INTERFERENCE IN THE CONTENT AREAS

by Sharon Kossack, Richard Campbell,
and Edward Reichbach; Florida Inter-
national University

Teachers of the content areas (science, social studies, mathematics) express great concern about students' lack of mastery of vocabulary. Since the concepts of the subject area are subsumed within its vocabulary, this can be a serious problem. Students' inability to remember the vocabulary may be symptomatic of their inability to understand the content. What causes this "amnesia"? What steps can the content area teacher take to alleviate the problem?

Teacher Awareness of Vocabulary Levels

As teachers express frustration over forgotten once-learned words, they most frequently are describing students' performance with only one level of vocabulary encountered in the content area: technical terminology. To fully understand students' difficulty when dealing with the terms within a subject area, content teachers must be aware of the five levels of vocabulary that students must simultaneously cope with in order to appreciate the students' learning task with regard to vocabulary. Each of these five levels is qualitatively different from the others; teaching strategies must differ accordingly.

The least complex level involve the use of standard words. These terms are common, everyday words used by students' in their speaking, writing, and reading. They would include words like and, are, in, now. The reading disabled learner would experience difficulty at this level of vocabulary and would be unable to deal with terminology on any of the other four levels. The teacher would find that such a student would be unable to cope with text content because basic reading difficulties render the task far too difficult.

Considering that the subject area teacher's task is to convey information, instructional adjustments must be made in order to be sure that the poor reader's disability will not hamper him/her from gathering subject information. The content teacher may wish to pair the disabled student with a more able reader. The more able reader could read the written text material aloud to the disabled student so the reading disability will not keep the disabled student from gaining content. Such a buddy system can be an avenue for the teacher to record the oral presentation session so that other disabled readers can listen to the more able reader on tape, thus gaining knowledge of the subject

orally, via tape recording (a variation of the impress method). Certainly, the content teacher will wish to gather easier to read materials for the disabled student. These can be from library sources, or a rewritten version of the text material used for the larger class.

The next level of vocabulary involves words which the student might encounter in their daily experience, but the meanings change when they enter the content area. These transitional terms cause difficulty, because the students tend to associate their "everyday meanings" with the subject-area context, which results in a loss of meaning. Table may evoke the concept of furniture, exercise a means of allowing the body to be active. If the student brings these ideas into content area reading, is it any wonder that the directions:

Use this table to solve the following exercises.

cause interpretation difficulties?

To ease students into multiple meanings, depending on context, the teacher may wish to scan text materials prior to instruction to identify such terms. A brief period of time should be devoted to checking students' meaning of these words prior to their attack on the text materials. Should students indicate that they perceive the meaning of these terms in a non-content area context, the teacher must take the time to help them readjust their views.

Technical terms, those words which are specific to the subject area context, are the level of vocabulary most often identified as the terms which give the most difficulty. Teachers readily indicate that students have difficulty remembering the meaning and use of such terms as judicial, hibernate, hexagon. Since students rarely have an opportunity to use these words in their day-to-day conversations, learning technical terms becomes a task akin to learning a foreign language: without practice it is readily forgotten. To provide such practice, the teacher must allow students to enter instructional situations where they maximally use the words in conversation.

Activities like 20 Questions are helpful in providing such practice arenas. Students take turns thinking of a term, and field Yes/No questions designed to lead to the identity of the term. For example, a student might think of a type of number (prime), and field such questions as "Is it a multiple of two?" "Does it express parts of a whole?"

Likewise, adaptations of television word games like Jeopardy provide

excellent vocabulary practice. Student pairs work together to identify categories of terms. If one partner gave a clue like "diamonds, squares, rectangles", the other partner would be lead to identify "four sided shapes."

When working with technical terms, the teacher must be aware of its subcategories. Words derived from other languages (like mesa), symbols (like %, +), and abbreviations (lb., oz.) each have their own peculiar difficulties and must be actively included in instruction. They have a common problem which renders them difficult to remember: either they have no sound-symbol relationship which enables students to sound out their pronunciation (symbols, abbreviations), or once they are sounded, they do not give clue to meaning (foreign-derived words).

Another category, changeable terms, appear very similar to transitional terminology, in that their meanings change. But it is the context of this change that provides the difference. Changeable terms change meaning within the specific content area. Race can be used in the context of a presidential race, or on the context of a person's heritage in social studies. Current can involve the movement within a body of water, or the flow of electricity in science. Prime involves the change in a set and a number of exactly two factors when seen in mathematics. Students tend to operate from a mindset, and are reluctant to be flexible once they have learned a set meaning for a term within one area. The teacher must realize that such terms require a change of meaning and point this out prior to reading.

Phrases, groups of words that appear to have an adjective-noun relationship but which, in fact, convey meaning only as a unit, can cause subtle and frustrating difficulty to students. The superior court is not a court that is better than another court, current electricity is not electricity that occurs immediately, nor is an acute triangle a triangle with less than 90 degrees. Students must be shown in glossaries that such phrases are granted a separate definition, apart for the definition of each of the words within the phrase.

Teacher Caution in Instructional Level

Teachers must be cautious in enthusiastically applying any of the wide variety of vocabulary techniques to the task of overcoming students' difficulties in subject area reading. Some are more effective in helping students master the terminology. Unless the teacher consciously applies techniques which move students beyond the rote memory level of vocabulary understanding, the teaching has been valueless. Teachers can evaluate the level of their teaching by contrasting their chosen techniques with the levels of vocabulary understanding identified by Mangrum and Forgan:

Specific. This form of instruction provides student practice at the rote memory level. The student can memorize a definition and

can correctly identify the word when encountered in the content area. No personal meaning is associated with the word; a paraphrased definition cannot be given, nor can the word be used naturally in a student's general conversation.

Activities which involve vocabulary learning on the specific level are match games (where student matches definition to term), word hunts (where students circle words within a grid of letters, directed by a word bank), scrambled letters (students unscramble words to form words currently being studied), and looking up words-definitions in the dictionary.

Functional. Student is able to paraphrase the definition, or use the word in natural conversation within the content area. The student understands the word on a use level, and can identify variations of the term (in terms of use). That is, chairs can be rocking, overstuffed, or ladder back. At this level, the student can deal with only one meaning--within the content context.

Activities which involve vocabulary learning on the functional level include Archie Bunkers (incorently used terms in a content situation that may cause humorous responses. Example: "Aw, Meathead! You don't know nothing about good places to move! California has them there earthquakes because of the St. Andrews fault, there."), 20 Questions (students must phrase questions to identify the missing term), Fill In The Blank context exercises (The farmers used the ____ to harvest the grain.).

Conceptual. Student at this level is aware of overriding concept that links terms, by use/meaning. Multiple meanings for words, depending on context, is understood--student can relate terms within the content area to terms outside the area.

Activities which involve conceptual vocabulary learning include: \$20,000 Pyramid (student pairs take turns giving clue words; partner must identify the category; Example: Whale, dog, horse, person Category: mammal), Analogies (president:U.S.:__:England).

Research has shown that if teachers instruct using exercises only at the specific level, students will not progress above that level. Teachers who gain sensitivity to the students' task of simultaneous translation of five levels of vocabulary, and who strive to instruct at levels above the specific, will find their students are better able to deal with content area vocabulary.

Conclusions and Implications

The levels of vocabulary and the level of instruction criteria have admitted use in raising teachers' awareness of the learning task involved in mastering content area vocabulary. But their potential function is greater than that.

(1) Taxonomy. Both frameworks can be considered as taxonomies, which help professionals converse about the interrelationships and complexities within written materials. Taxonomies enable us to describe the tasks, levels and interrelationships involved within a content area for the purpose of examining, adjusting, and expanding same. The models described in this presentation enable professionals to do so.

(2) Evaluating Instructional Practices. The hierarchy implied in the taxonomy certainly could assist teachers in critically self-evaluating present instructional practices, with the aim of focusing teaching techniques on higher levels of vocabulary understanding, thus improving student performance.

(2) Evaluating Instructional Materials. The same criteria could be used to evaluate materials under consideration for purchase. If instructional materials suggest techniques which are primarily at the specific level, perhaps the purchase price would be better invested elsewhere.

(4) Improving/Creating Instructional Materials. If materials currently being used are evaluated and found wanting, they can be supplemented with higher-level techniques to improve the level of student vocabulary understanding. Teachers can also use the criteria for instruction to create high-level materials out of non-traditional sources: telephone books, driver's manuals, Government-printed materials, etc.

(5) Readability. The levels of vocabulary categories might present a fruitful avenue of inquiry for readability. One of the greatest drawbacks of readability formulae today is their "surface sampling." The formula measure surface elements (length of sentence, number of syllables in words) and not meaning. Since the levels of vocabulary are defined in terms of the meaning task required for mastery, we suggest that these levels might be used to gauge the relative meaning difficulty of content passages. That is, passages with high levels of changeable, transitional, and technical terms would be more difficult to understand than passages with lower percentages of such terminology.